

**Remarks on the genus *Mesotanais* Dollfus, 1897  
(Crustacea, Tanaidacea)  
Redescription of the type-species  
and description of *M. elongatus* sp. nov.**

by Jürgen SIEG and Graham BIRD

**Abstract.** — Examination of deep-sea tanaidaceans collected during cruises of the R.R.S. 'Discovery', and the R.V. 'Cryos' (BALGIM Expedition) from the North-east Atlantic provided material of the outstanding leptocheliid genus *Mesotanais*. The type-species *M. dubius* Dollfus, 1897, is redescribed and differences to the original description are discussed. An additional species represented in the material, *M. elongatus* sp. nov., is described in detail. Finally a key as well as a table demonstrating the most important characters for the so far known species is presented, including those two species, *M. longisetosus* Sieg & Heard and *M. vadicola* Sieg & Heard, only recently described from the Gulf of Mexico.

**Résumé.** — L'examen de Tanaïdacés d'eau profonde recueillis au cours des croisières du R.S.S. « Discovery » et du N.O. « Cryos » (Campagne BALGIM) dans l'Atlantique nord-oriental a fourni des représentants du remarquable genre *Mesotanais* (Leptocheliidae). L'espèce-type, *M. dubius* Dollfus, 1897, est redécrite et des différences avec la description originale sont discutées. Une espèce nouvelle présente dans la matériel, *M. elongatus* sp. nov., est décrite en détail. Enfin une clef et un tableau des caractères les plus importants des espèces connues jusqu'à présent sont proposés, incluant deux espèces, *M. longisetosus* Sieg & Heard et *M. vadicola* Sieg et Heard, décrites depuis peu du golfe du Mexique.

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INTRODUCTION

It is always gratifying to 're-discover' a species which has not been seen since it was described in the last century, especially if the nature of that account left only an enigmatic portrait. Examination of samples of deep-sea tanaidaceans collected during cruises of the R.R.S. 'Discovery', and the R.V. 'Cryos' (BALGIM Expedition) from the North-east Atlantic off southwestern Spain, Morocco and the Canary Islands has provided new material of the species *Mesotanais dubius* Dollfus, 1897. Originally described sketchily from a single specimen (now lost) collected off the Azores by the 'Hirondelle', this species has remained until recently the only known member of the family Leptocheliidae to lack eyes (LANG, 1973). However, two new species from the Gulf of Mexico have been described by SIEG & HEARD (1989), and they have provided a new diagnosis of this genus.

In the present paper, the type species *M. dubius* is redescribed, and an additional new species from the North-east Atlantic, *M. elongatus* sp. nov. is described. A key for the identification of the four known species of *Mesotanaïs* is included.

#### MATERIAL AND METHODS

Tanaidacean material from the BALGIM cruise was loaned by M. SEGONZAC of the Centre National de Tri d'Océanographie Biologique (CENTOB), Brest. This cruise was carried out aboard the R.V. 'Cryos' for the Centre National de la Recherche Scientifique (PIROCEAN) under the direction of Dr. P. BOUCHET. J. ALLEN of the University Marine Biology Station, Millport, Scotland, loaned material (which was returned from the USA by

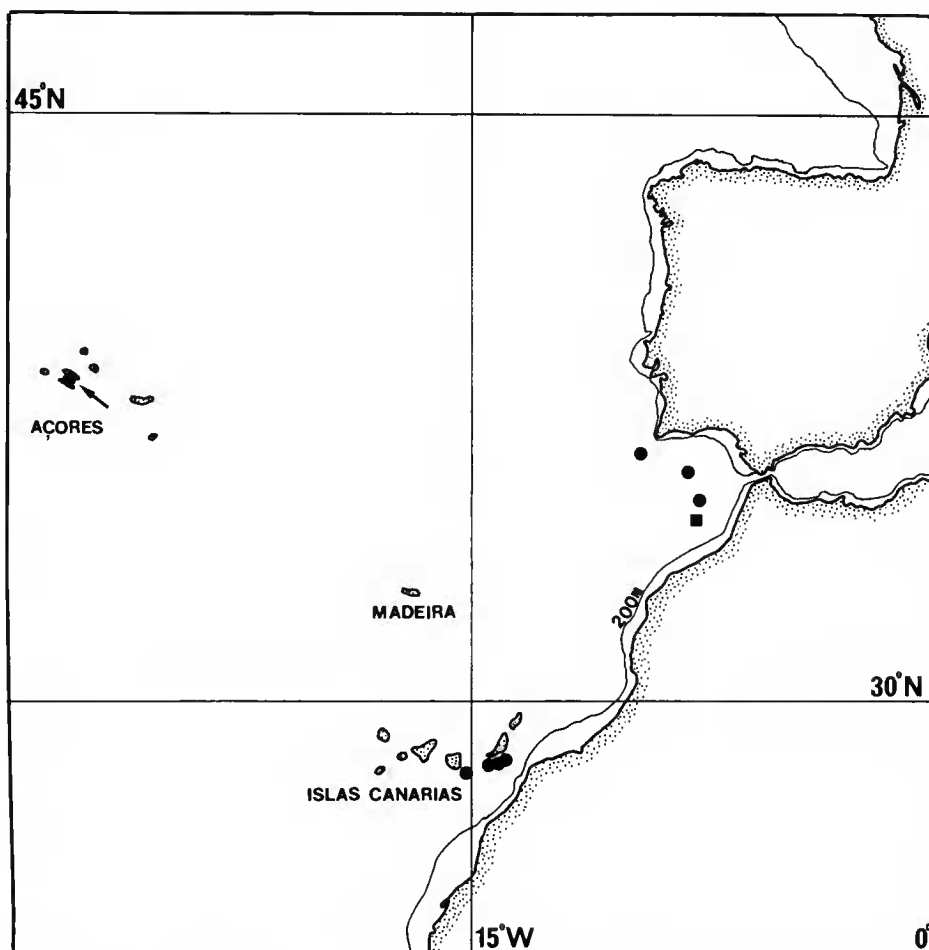


FIG. 1. — Collecting sites for *Mesotanaïs dubius* Dollfus (●), 1897, and *M. elongatus* sp. n. (■).

Isabelle WILLIAMS and H. SANDERS of the Woods Hole Oceanographic Institute) from a cruise by R.R.S. 'Discovery' in 1968. The localities of the relevant stations are shown in figure 1.

Type material has been deposited in the Muséum national d'Histoire naturelle de Paris and the British Museum (Natural History) [BM(NH)].

*Abbreviations used in the text or figures*

A.1 : antenna 1 (or antennule); A.2 : antenna 2 (or antenna); L : labrum (or upper lip); Md : mandible; La : labium (or lower lip); Mx.1 : maxilla 1 (or maxillule); Mx.2 : maxilla 2 (or maxilla); Mxp : maxilliped; Epi : epignath; Che : cheliped; P. : peraeopod (or pereopod); Pl : pleopod; Uro : uropod; Plt : pleotelson.

*SYSTEMATICS*

Order TANAIIDACEA Dana, 1849

Suborder TANAIIDOMORPHA Sieg, 1980

Family LEPTOCHELIIDAE Lang, 1973

Genus **MESOTANAIS** Dollfus, 1897

**Mesotanais elongatus** sp. nov.

(Fig. 2-5)

TYPE-MATERIAL : 1 neuter, holotype, Muséum national d'Histoire naturelle de Paris, Ta 701, eastern Atlantic, south off the Strait of Gibraltar, Balgim-84-Sta. DW 96, 34°23.5' N-07°40.3' W, 1255 m, 08.06.1984; 1 neuter, paratype, dissected in SIEG Coll., same station.

TYPE-LOCALITY : South off the Strait of Gibraltar, eastern Atlantic, 34°23.5' N-07°40.3' W, 1255 m.

ETYMOLOGY : The Latin name refers to the prolonged third to fifth peraeonites.

DESCRIPTION OF NEUTER (paratype)

Length of preparatory female, about 3.5 mm, 9 times longer than broad (fig. 2).

Cephalothorax : Relatively short, 1.25 times longer than broad, slightly narrowed in the most anterior part; no eye-lobes and no visual elements; one setule at midlength and one setule close to anterior corner.

Peraeonites : Lateral margins of all peraeonites more or less straight, sometimes slightly convex in dorsal view, no setae. First peraeonite short, trapezoidal, broadest anteriorly, 2.3 times broader than long. Second to fifth peraeonite quite similar in general shape, second 1.5 times longer than broad; third 1.25 times longer than broad; fourth slightly convex, broadest at middle, 1.3 times longer than broad; fifth similar to third. Sixth peraeonite 1.1 times broader than long, anterior corners semicircular.

Pleon : All five pleonites of similar size, small, about 3.6 times broader than long.

Antenna 1 (fig. 2) : Three-segmented. First segment elongate, 4.3 times longer than broad ; inner border with three feathered hairs and one seta at midlength and three distal setae. Second segment short, only 1.5 times longer than broad, inner border distal with one feathered hair and one seta, outer border with one seta. Third nearly 5.5 times longer than broad, with one aesthetasc, two short and three longer setae.

Antenna 2 (fig. 2) : Six-segmented. First segment small, semicircular, partly fused with cephalothorax, and unarmed. Second short, but still 1.4 times longer than broad, distal outer border with one strong spine. Third segment stout, as long as broad, outer border distal with one spine. Fourth elongate, slightly bent ventrally, 5.7 times longer than broad, one subdistal and one feathered hair as well as three setae distally. Fifth also elongate, about five times longer than broad, with one feathered hair and two setae distally. Sixth segment very small, conical, with one short and three longer setae.

Labrum (fig. 3) : Hood-shaped, tip with some fine setules.

Mandibles (fig. 3) : Well developed and of typical shape. Pars molaris with well developed crushing area. Right mandible with slightly crenulated pars incisiva ; lacinia mobilis fused, represented only by a tip. Pars incisiva of left mandible with one large and several small teeth ; lacinia mobilis large, with one large slightly indented tooth and four small teeth.

Labium (fig. 3) : Consisting of two lobes ; inner lobe small, tip covered with fine setules ; outer lobe well developed, distal edge with three stronger setules otherwise covered with fine setules.

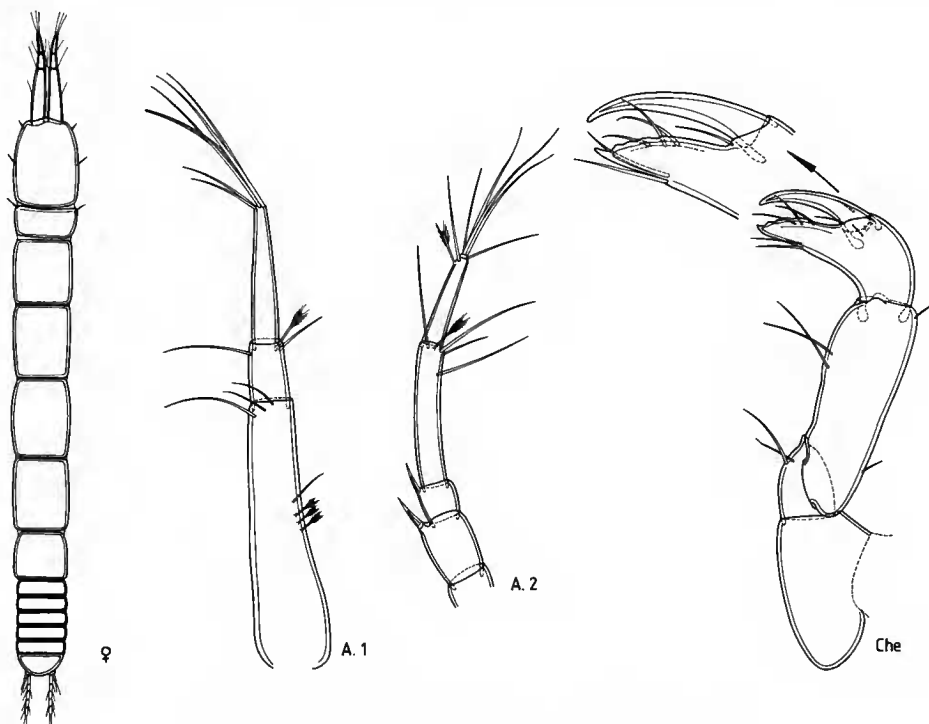


FIG. 2. — *Mesotanais elongatus* sp. n., neuter, paratype.

Maxilla 1 (fig. 3) : Endite bearing circle of nine spines accompanied by several groups of small setae. One-segmented palp slightly shorter as endite, with two terminal setae.

Maxilla 2 (fig. 3) : Of typical shape, pear-shaped, lacking setae.

Maxilliped (fig. 3) : Well developed, without coxae. Basis unfused medially, with two long setae near articulation of palpus; inner lobes slightly smaller than in other members of the

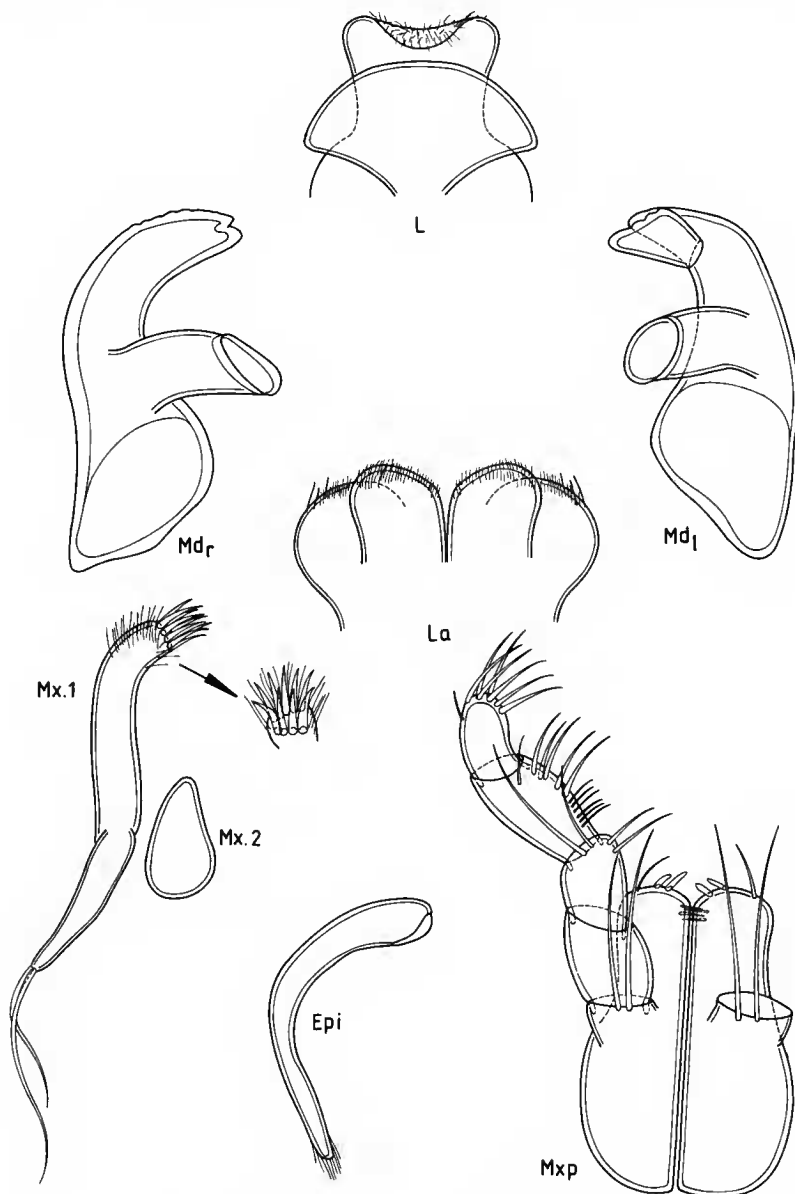


FIG. 3. — *Mesotanais elongatus* sp. n., neuter, paratype.

family, unfused, distal margins each with two translucent spines near midline and two pairs of coupling-hooks, outer edges each with a seta. Palpus four-segmented; first segment triangular, inner border shorter than outer; second with inner border longer than outer, no seta at outer border, inner border with two groups each of two setae; third segment about 1.6 times longer than broad, inner border with a row of six setules, upper half with a row of five strong setae flanked by one small seta; fourth about twice as long as broad, outer border with one seta, inner border with seven distal setae.

Epignath (fig. 3) : Of typical shape; elongate, tip rounded and covered with fine setules.

Cheliped (fig. 2) : Well developed, of typical shape. Side-piece of normal size, articulating with basis behind a distal conjunction. Basis elongate, nearly 2.8 times longer than broad. Merus small, triangular, with one long and one short midsternal seta. Carpus elongate, about 2.8 times longer than broad, outer border with one small proximal and one small distal seta; inner border at midlength with two long setae. Propodus with fixed finger stout, twice as long as broad, with "comb" at base of dactylus consisting of one small seta and a group of fine setules; one additional small seta near articulation of dactylus; fixed finger with three tergal and two sternal setae, tip represented by a thorn-like projection. Dactylus curved, tip only somewhat more sclerotized than rest, as long as fixed finger.

Peraeopod 1 (fig. 4) : Slender, longer than P.2-P.3. Coxa not fused with peraeonite, with one seta. Basis bent sternally, 5.8 times longer than broad, proximal with one sternal seta. Ischium annular, with one tergal seta. Merus 1.7 times longer than broad, tergal border with one distal seta. Carpus about 1.9 times longer than broad, sternal border with one long distal and tergal border with two short distal setae. Propodus elongate, 4.5 times longer than broad, tergal border with one small distal seta, sternal border with three long distal setae. Dactylus and terminal spine unfused, combined as long as propodus, dactylus with one well developed proximal seta.

Peraeopod 2 (fig. 4) : Shorter than P.1. Coxa not fused with peraeonite, bearing one seta. Basis about 5.5 times longer than broad, no setae. Ischium annular, with one tergal seta. Merus twice as long as broad, tergal border with one distal seta. Carpus 1.9 times longer than broad, tergal border distally with one tiny spine as well as two setae and sternal border distally with one longer seta. Propodus 3.5 times longer than broad, tergal border with one tiny distal spine, sternal border with two distal setae. Dactylus and terminal spine unfused, as long as propodus, dactylus without setae.

Peraeopod 3 (fig. 4) : Similar to P.2, but basis and propodus somewhat shorter; propodus with sternal border with only one distal seta.

Peraeopod 4 (fig. 4) : Stout. Coxa fused with peraeonite, one seta. Basis 3.9 times longer than broad, tergal border with one proximal feathered hair. Ischium annular, two tergal setae. Merus bent sternally, 1.9 times longer than broad, tergal border with one rostral and one caudal spine. Carpus twice as long as broad, sternal border distally with one rostral and one caudal spine, tergal border only with one caudal spine which is longer than sternal ones. Propodus 3.4 times longer than broad, tergal border with distally one caudal and one rostral spine, sternal border with three distal setae. Dactylus and terminal spine fused, forming a claw, with some setules.

Peraeopod 5 (fig. 4) : Similar to P.4, but basis somewhat stronger.

Peraeopod 6 (fig. 4) : Similar to P.4 and P.5, except propodus bearing on sternal border five distal setae.

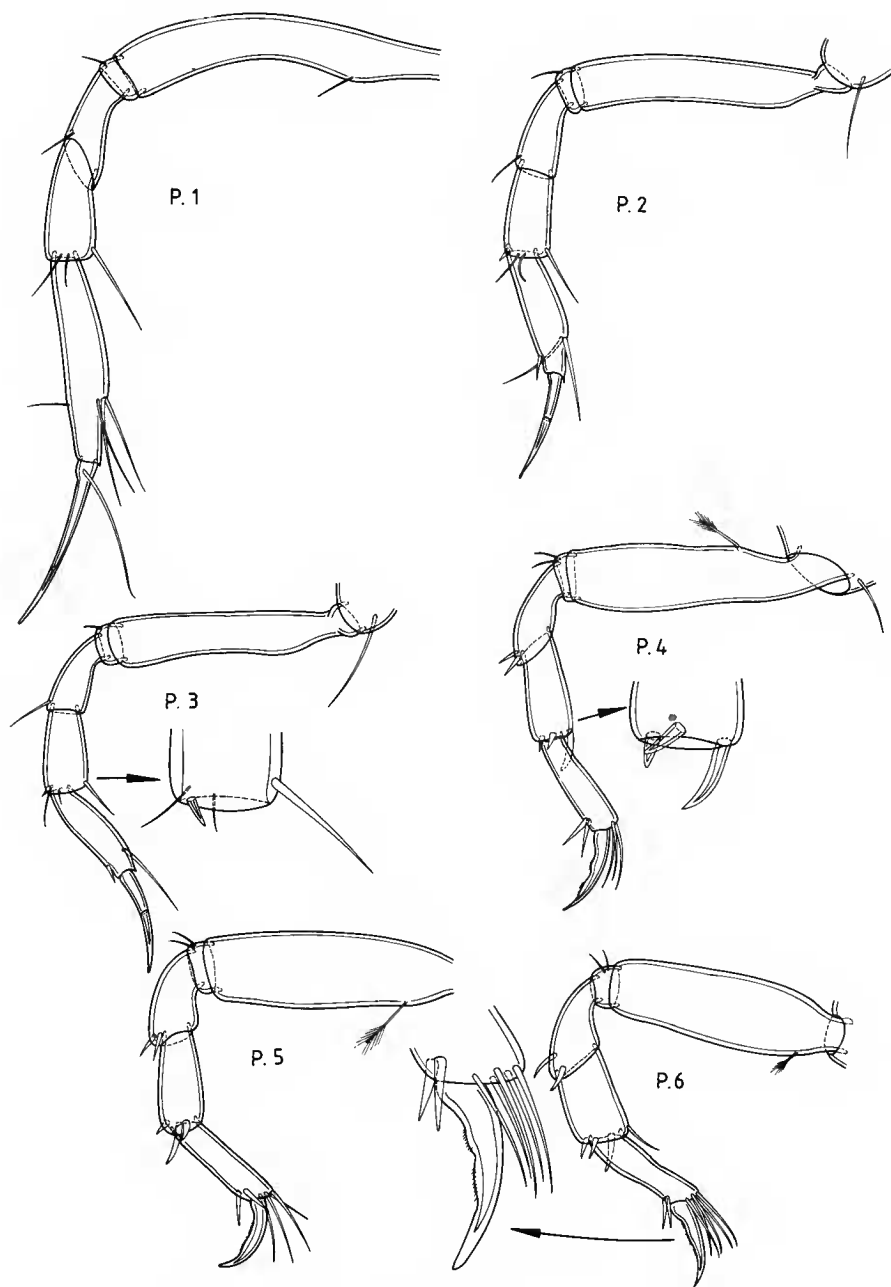


FIG. 4. — *Mesotanais elongatus* sp. n., neuter, paratype.

Pleopods (fig. 5) : All five pairs of pleopods similar. Basis small, as long as broad, sternal border with one pinnate seta. Exopodite one-segmented, outer border with pinnate setae, with one strong, pilose seta which is close to the articulation with the basis and is separated by a gap from the pinnate setae. Endopodite one-segmented, inner border with one pinnate seta at midlength; outer border with one proximal seta which is separated by a gap from other (five) pinnate setae.

Pleotelson (fig. 5) : Of typical shape, about 1.75 times broader than long; caudal point somewhat prominent but typically bent sternally, with two tergal and two sternal setae; nearby with one seta and feathered hair on each side of midline.

Uropods (fig. 5) : Biramous. Basis short, 1.6 times longer than broad, unarmed. Exopodite two-segmented; first segment about three times as long as broad, one distal seta; second similar to first, with two long setae at tip. Endopodite five-segmented; first and second segment fused, together about 2.9 times longer than broad, distally with one feathered hair;

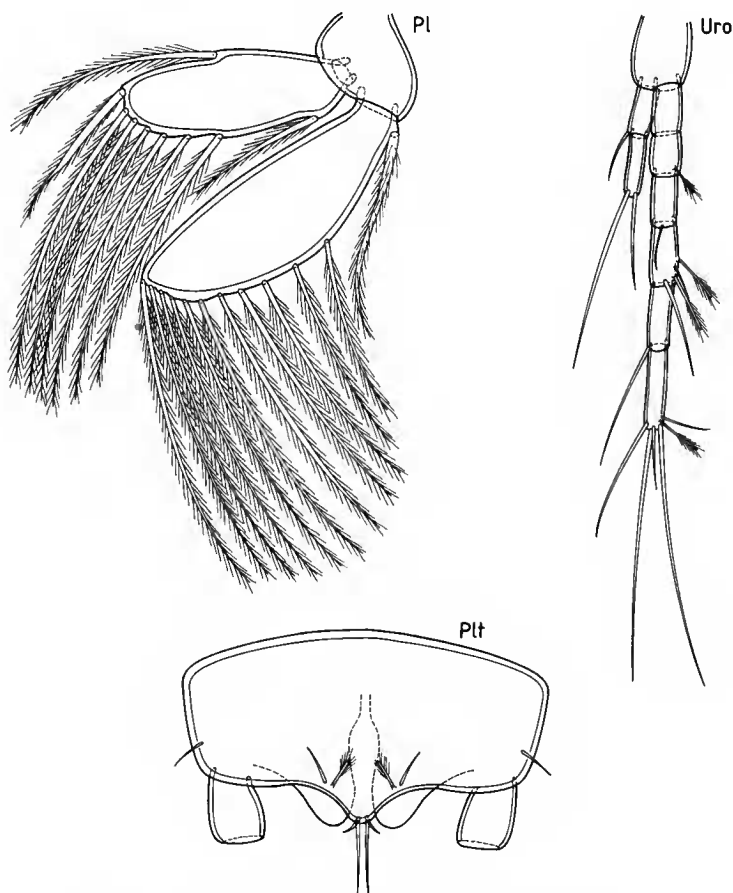


FIG. 5. — *Mesotanais elongatus* sp. n., neuter, paratype.



third 2.9 times longer than broad, one distal seta; fourth three times longer than broad, one distal seta; fifth nearly four times longer than broad, with two feathered hairs, one small and three long setae at tip.

Male unknown.

#### REMARKS

At the first glance this species resembles *M. vadicola* Sieg & Heard (1989) in the setation of the terminal segment of the A.1 and in the shape of the cheliped. But *M. elongatus* sp. nov. is quite different in general body shape, because the peraeonites 2-6 are all distinctly longer than in *M. vadicola*. The latter species also has the pars molaris somewhat reduced, while it is of typical broad shape in *M. elongatus*. Finally, the cheliped is more slender in *M. elongatus* because of the prolonged basis which is nearly 2.9 times longer than broad. In *M. vadicola* this segment only is 1.9 times longer than broad.

Besides these major characters there are others which further separate both species. Within the A.2 the two setae on the second as well as some of those on the fourth segment are missing in *M. elongatus*. The outer lobe bears three somewhat stronger setules instead of one tiny spine-like structure. The maxilliped of *M. elongatus* astonishingly agrees nearly completely with that of *M. longisetosus* Sieg & Heard and does not correspond with that of *M. vadicola*; especially the proximal row of small setae on the third segment of the palpus. Differences in the peraeopodal setation are minute, but worth mentioning are the long dactylar setae in P.1, the longer sternal seta on the carpus as well as the probably missing dactylar seta both in P.2/P.3, and the enlarged distal spine on the caudal margin of the carpus in *M. elongatus*. The pleopodal setation seems to be better developed in *M. vadicola* than in *M. elongatus*. Finally, the uropodal endopodite might have only 4 (5?) segments in *M. elongatus* and 5 (6?) in *M. vadicola*. But this cannot be said with absolute certainty because of the preadult condition of the specimens of *M. elongatus*.

**DISTRIBUTION** : The species so far is only known from the type-locality, but may have a broader distribution in the Lusitanian region.

**Mesotanaïs dubius** Dollfus, 1897

(Fig. 6-9)

**BIBLIOGRAPHY AND SYNONYMY** : see SIEG, 1983 : 498.

**MATERIAL** : Eastern Atlantic. 1 neuter/female, 2 copulatory females (one with embryos), BM(NH) 1988 : 106 : 2, south-east off Fuerteventura, 'Discovery' Sta 6697, 27°57' N-13°46.2' W, 1564 m, 15.03.68; 1 manca-II, 5 neuter/females, 4 copulatory females (one with some oostegites lost-post breeding?), BM(NH) 1988 : 107 : 10, south off Fuerteventura, 'Discovery' Sta 6701, 27°45.2' N-14°13' W, 1934 m, 16.03.68; 1 neuter/female, BM(NH) 1988 : 108 : 1, south off Fuerteventura, 'Discovery' Sta 6704, 27°44.9' N-14°25' W, 2129 m, 17.03.68; 1 copulatory female (with 13 embryos), BM(NH) 1988 : 109 : 1, south off Gran Canaria, 'Discovery' Sta 6709, 27°29.8' N-15°20.1' W, 2351 m, 18.03.68. 1 neuter/female, Muséum national d'Histoire naturelle de Paris, Ta 702, off the Strait of Gibraltar, Balgim-84-Sta. DW 71,

35°31.3' N-07°25.6' W, 1222 m, 04.06.84; 1 neuter/female, Ta 703, Balgim-84-Sta. DW, 36°05.0' N-08°05.6' W, 1917 m, 10.06.84; 1 preparatory female (with rudimentary oostegites), dissected in SIEG Coll., north of the Strait of Gibraltar, Balgim-84-Sta. DW 11, 36°44.2' N-09°31.4' W, 1503 m, 29.05.84.

#### DESCRIPTION OF FEMALE WITH RUDIMENTARY OOSTEGITES

Length of adult female reaching about 3.0 mm, stout compared to *M. elongatus* sp. nov., 6.7 times longer than broad (fig. 6).

Cephalothorax : 1.2 times longer than broad, anterior lateral borders slightly curved anteriorly, posterior borders more or less straight; on each side with one setule near anterior corners and at midlength; rostrum tiny, no eye-lobes or visual elements.

Peraeonites : Lateral margins of the first four peraeonites nearly straight, those of the last two peraeonites only slightly convex. First peraeonite with anterior margin concave, nearly 1.8 times broader than long. Second 1.2 times longer than broad, third only slightly broader than long. Fourth peraeonite similar to second. Fifth peraeonite about 1.3 times longer than broad. Sixth small, about two times broader than long.

Pleon : All five pleonites of similar size, small, about 5.8 times broader than long.

Antenna 1 (fig. 6) : Slender, three-segmented. First segment 5.4 times longer than broad;

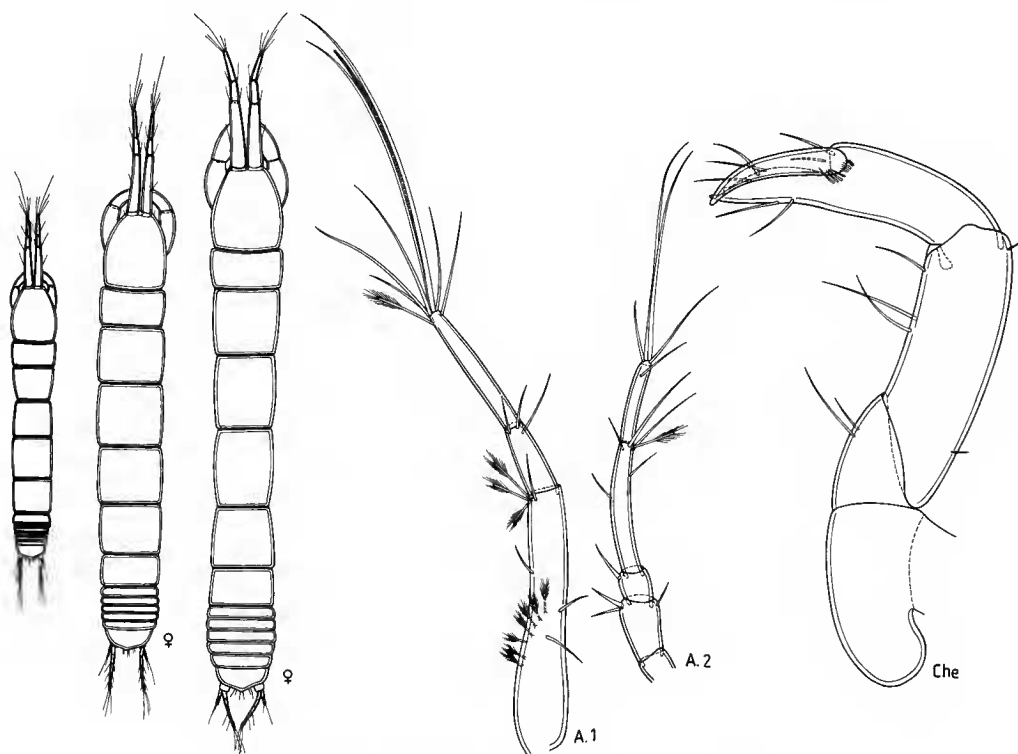


FIG. 6. — *Mesotanais dubius* Dollfus, 1897, female.

inner border with a row of seven feathered hairs and one seta at midlength, distally with three feathered hairs and one seta; outer border with two setae at midlength. Second segment 2.4 times longer than broad, with three distal setae. Third segment elongate, 7.5 times longer than broad, one subdistal seta and one subdistal feathered hair, at tip with two long setae, one aesthetasc and four shorter setae.

Antenna 2 (fig. 6) : Six-segmented (?). First segment small, semicircular, partly fused with cephalothorax, and unarmed. Second about 1.5 times longer than broad, outer border distal with one strong and one normal seta, inner border with one distal seta. Third segment small, as long as broad, outer border distal with one strong seta. Fourth elongate, 6.5 times longer than broad, one seta at midlength, inner border distally with a group of one feathered hair and two setae, outer border with one distal seta. Fifth segment about six times longer than broad, with one subdistal seta. Sixth segment tiny, conical, fused to the fifth (?), with two short and two long setae.

Labrum (fig. 7) : Hood-shaped, tip covered with fine setules.

Mandibles (fig. 7) : Well developed and of typical shape. Pars molaris strong, of typical shape, crushing area broad, wall well developed. Right mandible with slightly crenulated pars incisiva, lacinia mobilis fused, represented only by a tip. Pars incisiva of left mandible with one large and two small teeth, lacinia mobilis well developed, with one large and four small teeth.

Labium (fig. 7) : Consisting of two lobes; inner lobe small, tip covered with fine setules; outer lobe well developed, covered with fine setules, distal edge without any spine-like structure.

Maxilla 1 (fig. 7) : Endite bearing circle of eight spines and one additional spine at center; spines accompanied by several groups of small setae; proximal part also with several groups of setules. One-segmented palp as long as endite, with two terminal setae.

Maxilla 2 (fig. 7) : Of typical shape, pear-shaped, lacking setae.

Maxilliped (fig. 7) : Well developed, without coxae. Basis unfused medially, with one long and one short seta near articulation of palpus. Inner lobes (endites) slightly smaller than usual, unfused; each distal margin with one small and two big translucent spines close to midline; outer edge with one seta, at midline two coupling hooks. Palpus four-segmented. First segment triangular, inner border shorter than outer, no setae; second segment with inner border longer than outer, inner border distal with one long and three normal setae, outer border without seta; third segment elongate, about 1.4 times longer than broad, upper half with a row of three strong setae flanked by two small setae, one seta close to articulation of last segment; fourth segment about 1.8 times longer than broad, with one small seta on outer border, inner border with six strong setae.

Epignath (fig. 7) : Of typical shape; elongate, tip rounded and covered with fine setules.

Cheliped (fig. 6) : Well developed, with slender chela, *Typhlotanais*-like. Side-piece of normal size, articulating with basis behind a distal conjunction. Basis elongate, 2.1 times longer than broad, no setae. Merus small, triangular, with one long and one short midsternal seta. Carpus elongate, 3.1 times longer than broad, tergal border with each proximal and distal one small seta, distal half of sternal border with three setae. Propodus with fixed finger slender, about 2.6 times longer than broad, sternal border of fixed finger with two setae and tergal border with three, tip not markedly sclerotized, "comb" consisting of four small setae and several groups of setules, caudally with one additional small seta near articulation of dactylus. Dactylus curved, as long as fixed finger, with one proximal seta.

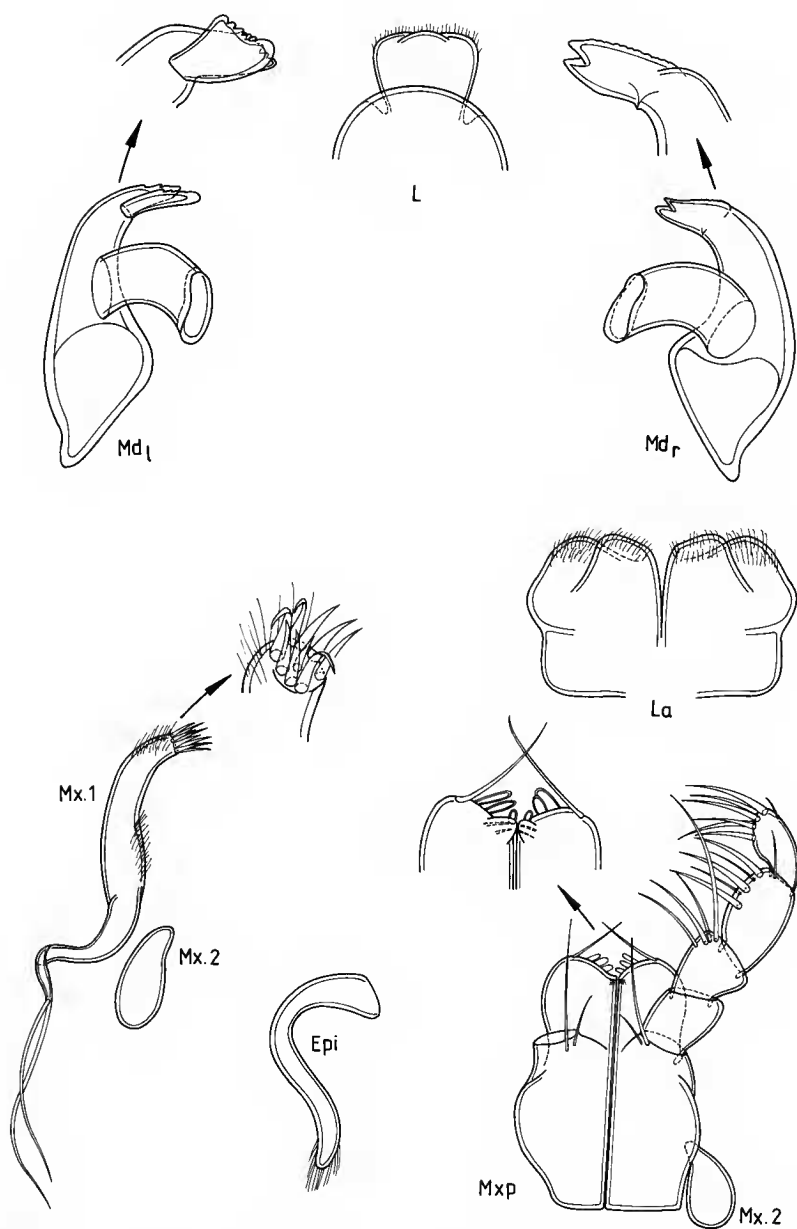


FIG. 7. — *Mesotanaïs dubius* Dollfus, 1897, female.

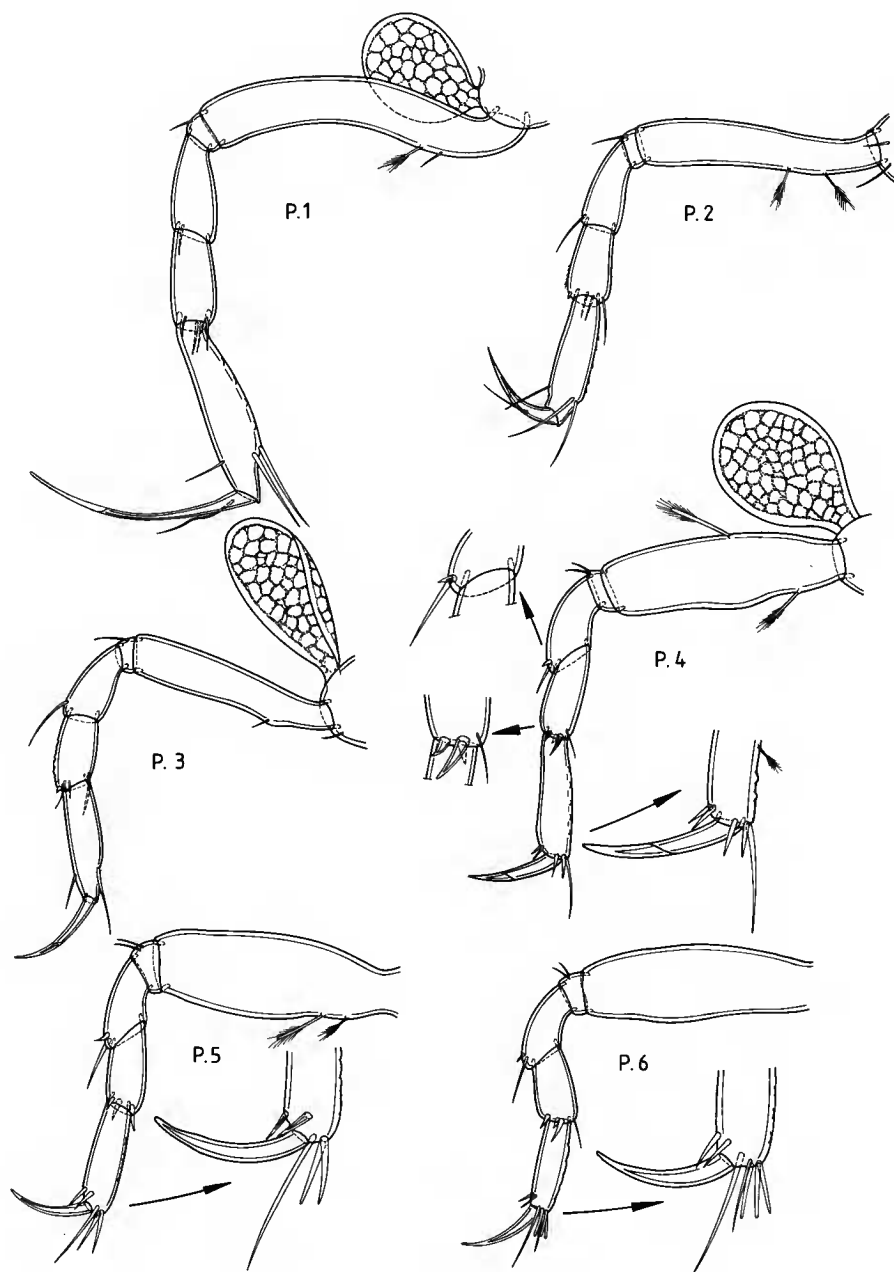


FIG. 8. — *Mesotanaeis dubius* Dollfus, 1897, female.

Peraeopod 1 (fig. 8) : Slender, distinctly longer than P.2 and P.3. Coxa not fused with peraeonite, bearing a rudimentary oostegite and one seta. Basis bent sternally, about six times longer than broad, proximal third of sternal border with one seta and one feathered hair. Ischium small, annular, one tergal seta. Merus twice as long as broad, tergal border with one distal seta. Carpus also two times longer than broad, distally with a group of three small tergal setae and small sternal seta. Propodus about 3.9 times longer than broad, tergal border with one seta in distal third; sternal border with two long setae in distal third. Dactylus and terminal spine unfused, together about 1.3 times longer than propodus, dactylus with one proximal seta.

Peraeopod 2 (fig. 8) : Similar to P.1, but smaller. Coxa not fused with the peraeonite, bearing a rudimentary oostegite and one seta. Basis 5.3 times longer than broad, proximal third of sternal border with two feathered hairs. Ischium annular, one tergal seta. Merus 1.9 times longer than broad, tergal border with one longer seta. Carpus 1.7 times longer than broad; tergal border caudally with one tiny spine and two rostral setae; sternal border with one distal seta. Propodus 3.3 times longer than broad; tergal border with one subdistal seta; sternal border with two setae. Dactylus and terminal spine unfused, distinctly shorter than propodus, dactylus with one seta.

Peraeopod 3 (fig. 8) : Similar to P.2, but basis with one small seta, and propodus only with one long seta in distal third.

Peraeopod 4 (fig. 8) : Stout. Coxa fused with peraeonite, bearing a rudimentary oostegite, no setae. Basis thickened, 3.1 times longer than broad, sternal and tergal border with one feathered hair in proximal third. Ischium small, annular, two tergal setae. Merus bent sternally, tergal border distal with one rostral spine and one well developed caudal seta. Carpus 2.3 times longer than broad, distal border rostrally with one spine and caudally with two spines and one seta. Propodus 3.6 times longer than broad; tergal border distal with one caudal and one rostral spine; sternal border with one longer and two short spinelike setae. Dactylus and terminal spine fused, forming a claw, which is shorter than propodus.

Peraeopod 5 (fig. 8) : Nearly identical to P.4.

Peraeopod 6 (fig. 8) : Similar to P.4 and P.5, except propodus bearing four short setae close to the long seta.

Pleopods (fig. 9) : All five pairs of pleopods similar. Basis small, as long as broad. Exopodite one-segmented, outer border with pinnate setae, one strong, pilose seta close to articulation with basis which is separated by a gap from the pinnate setae. Endopodite one-segmented, inner border with one pinnate seta at midlength; outer border with one proximal seta which is separated by a gap from the other pinnate setae (about 11).

Pleotelson (fig. 9) : Of typical shape, about twice as broad than long; caudal point prominent, but typically bent sternally, with two short sternal and two longer tergal setae; lateral borders each with one seta, caudal border with one seta and one feathered hair on each side of midline.

Uropods (fig. 9) : Biramous. Basis short, 1.5 times longer than broad, unarmed. Exopodite two-segmented; first segment about twice as long as broad, one distal seta; second more slender, 3.3 times longer than broad, with two setae at tip. Endopodite six-segmented; first and second segment most probably fused, first 1.5 times longer than broad and second more slender, about 3.3 times longer than broad, with distally one feathered hair; third 1.8 times longer than broad, with one distal seta; fourth segment 2.2 times longer than broad,

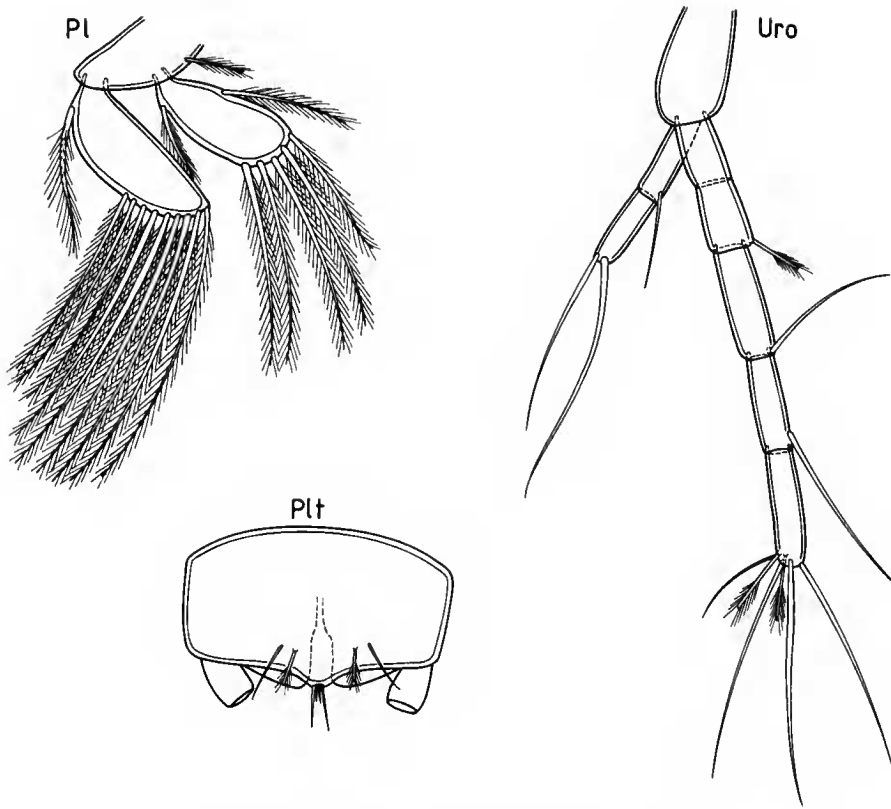


FIG. 9. — *Mesotanais dubius* Dollfus, 1897, female.

with distally two setae and two feathered hairs; fifth 2.6 times longer than broad, with one long seta; sixth elongate, 3.7 times longer than broad, with one feathered hair, two small, and three long setae at tip.

*Manca-II* : Essentially similar to above, but peraeonite 6 short, with rudimentary peraeopods; body length : width ratio 5.9; length of single specimen 1.4 mm.

*Neuter/female* : As preparatory female described above, but lacking all traces of oostegites; body length : width ratio variable, 6.0-6.9; length 2.1-2.8 mm.

*Copulatory female* : As preparatory female, but peraeon dorsoventrally compressed, forming concave ventrum; four pairs of lamelliform oostegites present; body length : width ratio 5.8-6.8; length 2.3-2.8 mm.

## REMARKS

Even if our specimens possess a uropodal exopodite and the endopodite is only 6-segmented, there is no doubt that they belong to *M. dubius*, which was superficially described by DOLLFUS (1897 : 213-214). The species is easily recognized within the genus by the long caudo-meral seta of the P.4-P.6 which replaces a spine situated at that position in all the other species. The shape and setation of the A.1/A.2, as well as of the cheliped are similar to those of *M. longisetosus*, while in body shape *M. dubius* generally more closely resembles *M. vadicola*. However, some more elongate specimens may appear similar to the sympatric *M. elongatus* sp. n. The maxilliped is similar to that of *M. vadicola*. Within the peraeopods the lack of the long seta on the sternal border of the carpus of the P.1 and the spine-like structure of some of the disto-sternal setae on the propodus of the P.4-P.6 are additional structures characterizing *M. dubius*.

**DISTRIBUTION :** The scattered records indicate that this species may be widely distributed in the Lusitanian region, at depths 1222-2351 m.

## KEY TO THE SPECIES OF *Mesotanaïs* (Fig. 10)

- |   |   |   |
|---|---|---|
| 1 | A.1 3-segmented .....   | 2 |
| — | A.1 7-segmented (so far only the male from <i>M. vadicola</i> is known) .....   | ♂ |
| 2 | A.1 slender with long terminal setae, these always longer than second and third segment combined. ....  | 3 |
| — | A.1 stout with short setae, these always shorter than second and third segment combined. ....   | 4 |
| 3 | Carpus of P.4-P.6 tergal with one spine and one seta; carpus of P.1 sternal only with short setae; dactylus and terminal spine shorter than combined length of carpus and propodus .....  |   |
|   | ..... <i>Mesotanaïs dubius</i> Dollfus, 1897  |   |
| — | Carpus of P.4-P.6 tergal with two spines; carpus of P.1 sternal with one long and several small setae; dactylus and terminal spine at least as long as combined length of carpus and propodus. ....   |   |
|   | ..... <i>Mesotanaïs longisetosus</i> Sieg & Heard, 1989   |   |
| 4 | Peraeonites 2-5 elongate, always longer than broad; pars molaris of typical shape, crushing area broad and not reduced; chelipedal carpus of typical shape, about 2.5-2.7 times longer than broad; dactylus of P.1 with one long seta; carpus of P.4-P.6 with one relatively long spine ..... |   |
|   | ..... <i>Mesotanaïs elongatus</i> sp. nov.  |   |
| — | Peraeonites 2-5 short, broader or at least as broad as long; pars molaris with reduced crushing area; chelipedal carpus stout, less than twice as long as broad; dactylus of P.1 with typical short seta; carpus of P.4-P.6 with 3 spines of equal length ....                                |   |
|   | ..... <i>Mesotanaïs vadicola</i> Sieg & Heard, 1989   |   |

## DISCUSSION

The Leptocheliidae is primarily a shallow-water family (SIEG, 1986) and *Mesotanaïs* is one of the few genera to have been recorded at depths greater than 200 m. The loss of eyes in this genus may be explained by this apparent preference for deeper waters than its confamilials. With this characteristic, and their elongate body-shape and chelipeds, the *Mesotanaïs* species closely resemble some in the genus *Typhlotanaïs* G. O. Sars.



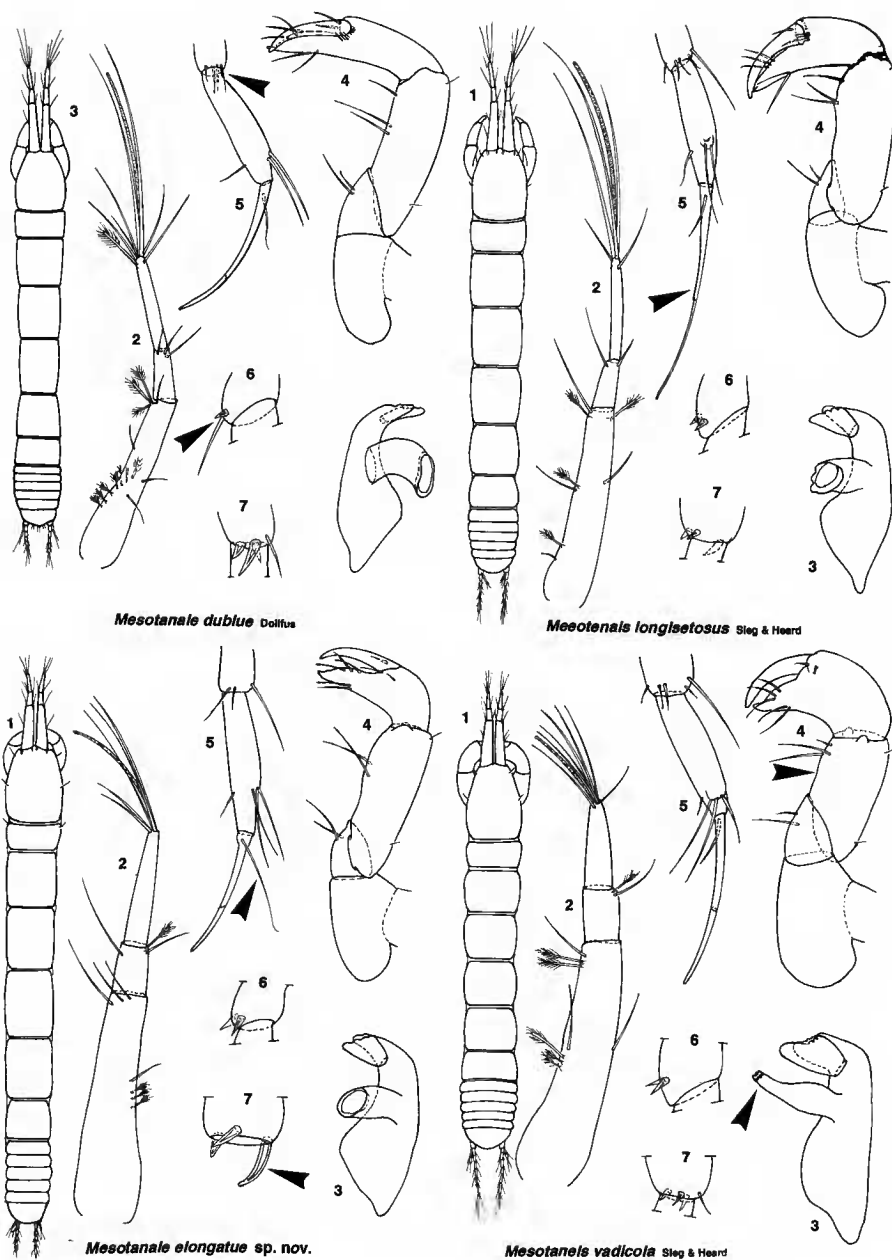


FIG. 10. — Major characteristics of the four *Mesotanais*-species (within each quart the figures are indicating the following parts : 1, female from dorsal; 2, A.1; 3, Md(1); 4, Che; 5, carpus, propodus, dactylus and terminal spine of P.1; 6, meral spines in P.4-P.6; 7, carpal spines in P.4-P.6; arrows are pointing of unique characters).

*Mesotanais* has an amphi-Atlantic distribution, but both the western and eastern records are from "warm" waters, principally on the upper continental slope. Geographic vicariance, as a result of the Mid-Atlantic Ridge, may be a good model for the speciation in this genus.

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